Sixteenth Year of Publication

Industrial FINISHING

Reg. U. S. Pat. Office

Devoted to Product Finishing in the Factory

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Letters from Readers

OF INDUSTRIAL FINISHING

These letters (and many others) were answered recently by the editorial department, but are published here to reveal certain interesting trends of desire and activity in the industry, and to encourage additional inquiries, comments and suggestions. Further information about any of them can be obtained by writing this office.—Editor.

Gyro Electric Sander

Kindly give me the address of the manufacturers of the Gyro Electric Sander.—H. Furn. Shop.

It's Sterling Products Co., Detroit, Mich.—ED.

Wood Grain Transfers

Please advise where we can procure transfers of wood grain—the kind that can be applied on the surface to give an imitation inlay effect. For our purpose we require strips 4-in. wide.—L. T. Radio Co.

Stain Remover

Please send me at once the name of the manufacturer of the stain remover mentioned in your magazine.—T. M.

Luminous Paint; Inks

Can you give us a source of supply for a luminous paint or a material that can be brushed on and that is visible in the dark?—M. C. Co.

We are eager to obtain the names of several suppliers who can supply a luminous ink. It is our thought to apply such an ink to paper for use on radio dials. Perhaps you have seen the station tabs used for automatic tuning on many of the radio sets. We want to print a luminous ink on paper so that these radio station letters will light up similar to the numbers on a watch dial. We will appreciate any suggestions that you may have regarding suppliers and methods of obtaining the result as described above.—E. T. & Co. (Engineers).

Several names supplied.—ED.

Your most interesting publication is a very welcome magazine in our offices each month and we are glad to receive it. Being full of practical information on the use of lacquers and kindred materials in all their various classes, it is a valuable booklet for any firm to have. —K. S. Co.

Spraying Fabrics

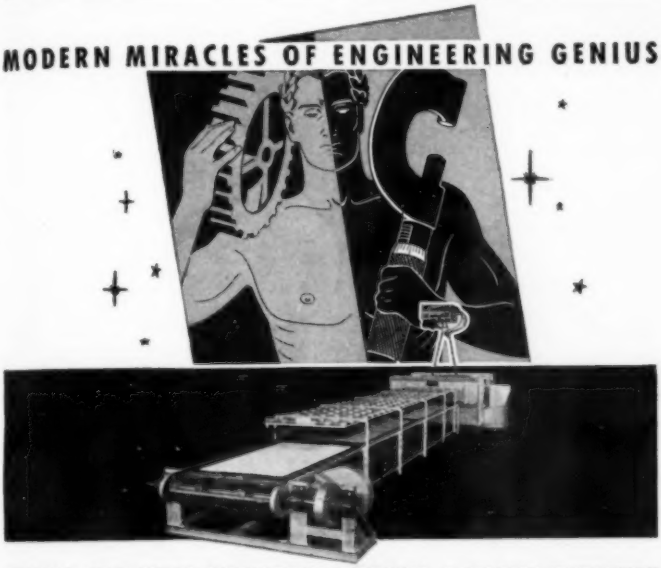
We are very much interested in spray coating fabrics and if you have any information on this subject, we would be pleased to have it.—B. Products Co.

Tear sheets of articles published in past issues have been sent.—ED.

Dip-Whirl Finish

We have enjoyed having INDUSTRIAL FINISHING and many practical ideas have resulted for our finishing department. We now would be in-

MODERN MIRACLES OF ENGINEERING GENIUS



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terested in knowing who manufactures the centrifugal devices which are used for finishing small wood parts—by placing finishing material and work in a rapidly revolving cage to throw off and reclaim surplus finishing material.—D. P. Co. (Wood Turnings).

Names of concerns supplied.—ED.

Repair Putty

We are interested in the repair putty and crack filler that you mention in your article on "Crack Repair," on pages 60 and 61 of INDUSTRIAL FINISHING for October 1939. We are manufacturers of wood finished cases and we believe we can use these materials very nicely in our work.—U. Mfg. Co. (Chests, Jewelry Cases, Displays).

Alcohol-Resistant Paper Lacquer

We are contemplating making coasters from cork, on which we are going to mount paper photos. Could you kindly advise us what material we can use on the surface of these photos, so as to protect them against alcohol from liquors? Or an alcohol-resistant covering that we may apply by spray, brush or by coating machine? As for adhering prints to the cork, we will get this material from the adhesive firm.—E. R. Co. (Personal Photo Products).

Stencils; Transfers

We notice an inquiry in your magazine for a manufacturer of silk-screen stencils. We manufacture all types of silkscreen stencils, and also produce silk-screen process work in addition to our baking enamel business. We make decalomanias or transfers, too. We will be pleased to offer you or your subscribers any information that we can.—Commercial Enameling Co.

Upholstery Spring Finish

We have a problem in finding a suitable japan for our upholstery springs and heavy helicals. Our present japan, when applied to the helicals and the springs, has a tendency to peel off. The japan does not cover the helicals uniformly; that is, it will cover parts of the heavy heli-

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SYNTHETIC and LACQUER ENAMELS
AIR DRY BAKE TYPES
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cals, and leave other parts unfinished.

We are interested in obtaining a japan for our upholstery springs and heavy helicals that must withstand a tempering-oven temperature of 650° F. for 1½ hours—one that will not peel off, and that will cover the helicals uniformly. If you know of any manufacturers of a japan that will meet our requirements, we will be exceedingly pleased to hear about it, for we are large users of this paint in our line.—A. J. Co. (Bed Spring Supplies).

Sounds like the springs are not thoroughly cleaned.—ED.

Rubbing and Buffing Machines

Please tell us the names and addresses of manufacturers of the small portable rubbing machines that you recommend. Also, give us the same information on portable buffers.—S. R. Inc. (Artistic Wood Products).

Tumbling Barrels

Referring to the inquiry about Tumbling Barrels, on page 66 of November issue, we have a customer who is interested in purchasing tumble equipment. The firm has requested us to give them sources of supply on both new tumble equipment as well as used tumble equipment. If you have any information on available used tumble equipment, kindly advise us accordingly; also, please give us a list of concerns from whom our customer can buy new tumbling equipment.—A. R. Co. (Finishing Materials).

Adhesive for Flock

We would appreciate it if you will supply us with the names of a number of manufacturers of adhesive for the spraying of flock.—I. L. Co.

Make Metal Signs

We have just noticed, in November issue of INDUSTRIAL FINISHING, a letter from one of your readers asking for the names of a few companies who produce baked enamel signs. We hope you thought about us when supplying this reader with the names of concerns. For your further information, we are one of the largest manufacturers of printed metal signs, producing them by the

FORM-A-ROC

We offer to all industries equipped for baking finishes this highly perfected, heat-converting, synthetic enamel.

FORM-A-ROC

We have combined to an optimum degree the necessary qualities of tremendous hardness, great adhesion, smooth lustrous gloss, and freedom from haze, discoloration and wrinkling.

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Baking schedule is of great flexibility, permitting from 5-50 minutes at 250-375° F.

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The country's leading makers

lithographic, gum, silk-screen and press-paint process. Our signs are made of the best of materials and give long and attractive advertising. We number among our customers some of the country's largest advertisers . . . . We also produce porcelain enamel work.—W. F. Robertson Steel & Iron Co.

Air-Dry White for Copper

We would like to know the names of the manufacturers of an air-drying white enamel that will stick to a copper surface and not chip or peel off. If you cannot do this, do you know any formula which can be applied to a copper surface which will cause standard white enamel to work satisfactorily?—C. Z. Co. (Laundry Equipment).

Grain Transfers

Please advise where we can procure transfers of wood grain which are applied on the surface to give an imitation inlay effect. For our purpose we require strips 4-in. wide. —G. T. Co. (Radios).

We would appreciate your forwarding us a list of manufacturers of grained transfers that may be cemented to wood, metal or other types of surfaces. We are particularly interested in using this product for table tops.—C. R. Co. (Furniture Specialties).

Opalescent Synthetic Enamels

We are interested in getting information on a company making opalescent synthetic enamels and not synthetic lacquer enamels. We wish to use this product on automobiles, therefore, we would like to have the gloss in the finish and need no rubbing down or polishing.—M. A. Co.

Waterproof Sandpaper; Celluloid Mfr.

We shall be very much obliged if you will recommend us to any reliable manufacturers of waterproof sandpaper to be used especially for lacquer finishing, and also a celluloid manufacturer, with a view to representing them in Singapore and Malaya.

In the meantime, through the advertisement in your INDUSTRIAL FIN-

Information, Please!!

For up-to-the-minute data on the NEWEST and BEST finishes—just drop us a line saying "Information, Please" and state on which of the following items you want data—

"TOPS" — That UNIQUE NEW Top coat.
DU-BAR — The world's best bleach.
WATEROIL STAINS — ABSOLUTE leaders.
NUOIL FILLERS — Without an equal.
FLO-SMOOTH LACQUERS — They do flo-smooth.
SEALSTAINS — Seal and stain.
DRI-DARK RUBBING COMPOUND — Dries dark.
No. 1900 CLEAN-UP POLISH — Eliminates haze and bloom.

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V. J. DOLAN & COMPANY, INC.

Mfrs. of "Unquestionable Quality" Wood Finishing Supplies

1830-32 NORTH LARAMIE AVENUE CHICAGO, ILLINOIS

ISHING, we have written to Minnesota Mining & Mfg. Co. of St. Paul, Minn. Our American reference is —, Los Angeles, and our bankers are National City Bank, Singapore and Oversea Chinese Banking Corp., Singapore, to whom you may kindly refer for references. — H. G. Kee (Mfrs. Agents).

Celluloid Covering

In your November Questions and Answers we note that you have an inquiry concerning a celluloid finish for metal. We are much interested in a finish of this nature for refrigerator shelves, and should like to receive a copy of the article pertaining to this finish that you state was published in your June 1938 issue.—H. E. Refrigerator Co.

Paint Like Chromium

Our representatives in Australia have requested that we get in touch with you in an effort to find out if you can tell us who manufactures a chromium paint, which is used extensively for reconditioning used cars. According to the information that they have, this paint is spread on the worn or stripped portions of old bumper bars or wind deflectors, and then polishes up in the ordinary way.—K. S. & Co. (Export and Import Trade).

Portable Sander

Can you give us the name of the manufacturer of a pneumatic sanding machine? This is not a disc or belt sander, but is one that simulates hand sanding.—H. R. Co.

Two advertisers in INDUSTRIAL FINISHING can supply machines of this type. One machine is frequently illustrated in operation. Names are being forwarded by letter.—ED.

Tumbling Barrels

We manufacture a number of small wooden items and are in the market for a small tumbling machine that will coat from 2500 to 3000 of these items at a time. Inasmuch as we use a number of colors, including clear, we prefer a tumbler that

(Continued on page 57)

Fig. 1—Beginning of the finishing line where furniture is placed on traveling trays.

Conveyorized Furniture

BY M. L. AGREDA
Bellingham Furn. Mfrs.
Bellingham, Washington

OUR COMPANY, along with all furniture manufacturers, was faced with wage increases, higher taxes, shorter hours and increased overhead. We found our costs jumping and determined it was necessary for us to reduce manufacturing costs by adopting more efficient methods.

After studying the situation we concluded that the most outstanding improvement, apparently, could be made in our finishing department. We had an average department with wheeled equipment for transferring stock from booth to booth and a forced-drying oven, or rather a large room in which we maintained a high temperature for overnight drying. All stock was moved on trucks (some of which were double decked to conserve space and save labor) from the white sanding department, through the various finishing operations to the packing department.

A conveyor looked like the best improvement we could make. We reasoned that:

A) A conveyor would give greater production in the same floor space.

B) Greater production per hour of operation, thus decreasing overhead.

C) Save labor in moving stock.

D) Save labor in lifting tons of stock on and off turntables for finishing, thereby increasing the efficiency of the spray operators.

Fig. 2—First spray booth is at left. Entrance to and exit from ovens appear at right.

Finishing Department . .

We have increased our production nearly 300%, with less floor space than we formerly used. Labor and overhead were reduced, service to customers greatly improved. Altogether it has proved to be the best investment we ever made.

★

E) Develop a rhythm for spraymen that would give more production, if stock delivery was properly timed.

F) Permit us, through increased production per day, to give better service to our customers.

Yes, a conveyor looked like the biggest possible saving. All of the conveyor people we had ever heard of were contacted, but it soon became apparent that what we wanted was "not on the market." The more we "shopped" the more we became convinced that we were going to have to start with the assumption that there was not a furniture finishing system that would meet our needs. Then, a list of what we wanted a conveyor to be and what we wanted it to do was compiled. It ran as follows:

1) As we figure that lacquer costs three to four times as much as varnish (particularly on chairs, a large part of our production) the system we needed must be adaptable to the use of varnish.

2) We wanted to use the same materials that we were already using. We could not see the advantage of reducing labor and

paying more for materials.

3) It must be comparatively inexpensive.

4) Due to the possibility of dust and dirt falling on newly varnished stock, we eliminated consideration of the overhead type. There is always some chain surge which we believed would cause vibration that would displace dust from the overhead structures necessary in this type of conveyor. The overhead conveyor also had carriers which we thought were awkward to load, turn, vary spacing between carriers, and in addition they were expensive.

5) Because of the very limited space, it had to be compact.

6) We wanted a production of 200 dinette sets, consisting of four chairs and a table, to a shift of 8-hours—or the equivalent in case goods.

7) We wanted a system that we termed "continuous"; that is, we did not want to take any stock off the conveyor for drying—thus eliminating handling and conserving floor space.

8) We wanted a system that would run 8, 16 or 24 hours continuously, if needed.

9) When an item like a chair, that requires finishing on all sides, was to be finished, we did not want any obstruction between the spray gun and the article to be finished, as exists in

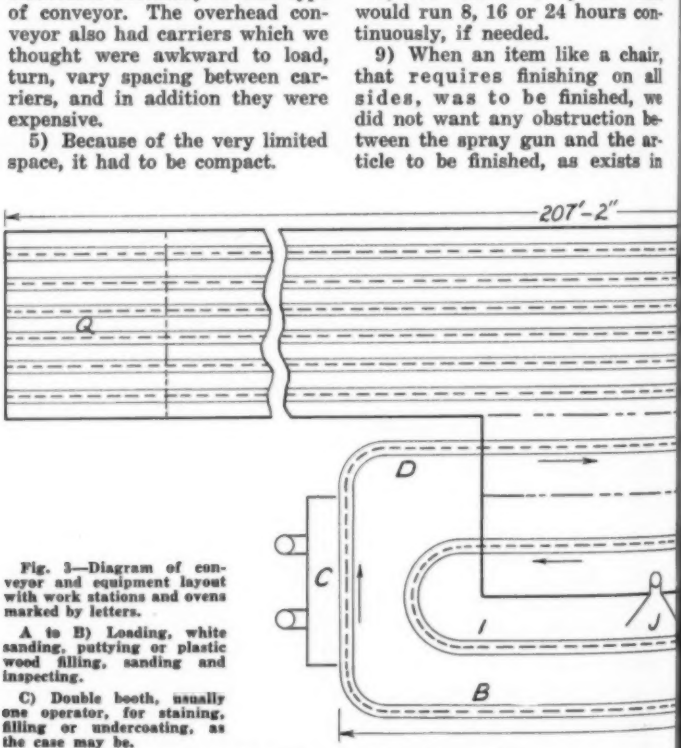


Fig. 3—Diagram of conveyor and equipment layout with work stations and ovens marked by letters.

A to B) Loading, white sanding, puttying or plastic wood filling, sanding and inspecting.

C) Double booth, usually one operator, for staining, filling or undercoating, as the case may be.

D) Station for the wiping stain or filler.

E) Oven for drying work done at C.

F) Space alloted for cooling. Actual experience proved this unnecessary.

G) Booth for sealing.

H) Oven for drying work done at G.

I) Station for "sanders" of sealer or undercoat.

J) Booth for shading.

the supports for the hanging-type carrier.

10) We did not want the stock to have to be lifted on and off a turntable, but it had to revolve freely for finishing on all sides.

11) We did not want the spraymen to have to hang up their guns at any time. We wanted continuous spraying.

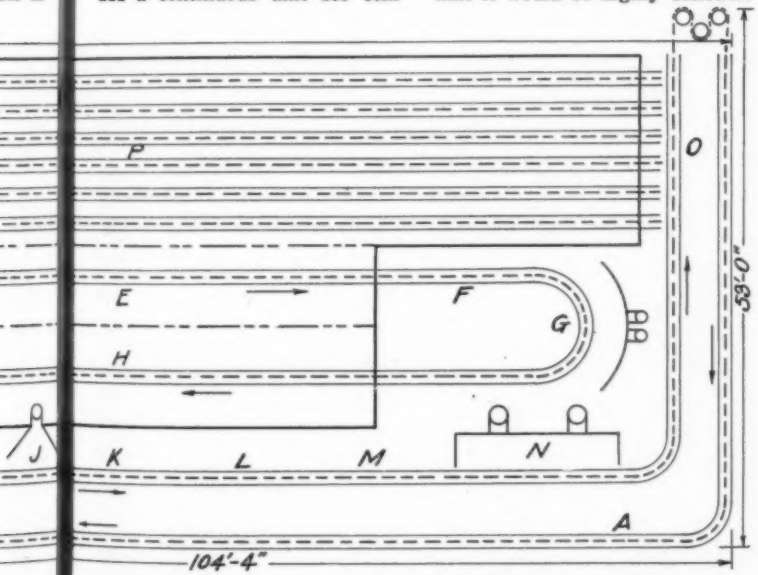
12) The system had to be flexible enough to handle all items from drawer knobs, chairs, tables, novelties, beds, dressers, chests, vanities, etc., and it must permit us to change from the smallest to the largest item without stoppage.

13) A system to which we could add a continuous unit for completely assembling the stock, when funds and space were available.

14) A system on which all operations could be performed continuously, including white sanding, puttying for enamel coats, inspection, staining, undercoating, filling, wiping, sealing, sanding, shading, decorating, striping, varnishing, etc., without anything being taken off the conveyor for drying.

15) A system to which a packing conveyor could be added for further continuous operation, when a proposed addition to our buildings was constructed.

16) Further, it was brought out that it would be highly desirable



K to L) Decorating space.
M) Striping space.
N) Varnish, or final coat.
O) Transfer point from traveling continuous work conveyor to oven conveyor with "solid pack" arrangement, which conserves space and heat.
P) Varnish drying oven.
Q) Cooling space.
Beyond Q) Discharge space.

Fig. 4—View of last booth from which conveyor makes a left turn to entrance of oven.

if the item being finished could be stopped for very detailed work, such as striping or decorating at various stations for a short time, without stopping the conveyor or changing the conveyor speed.

17) It was recognized that in changing from one item to another, or due to mixed items being on the line, if an operator could give more or less time to an item without changing conveyor speed or stopping the conveyor, that is, if the operator could move the carrier ahead or could shove work out of the way when the operation had been performed, it would be a very desirable feature.

18) We wanted even definite spacing of stock, to exactly control production and to develop rhythm in the operators, but a simple flexibility of spacing also for the different size items we have to finish.

19) A system that would be simple and economical to operate and maintain.

20) Stock had to be ready to rub when it came from the final drier.

21) Using varnish, we wanted to ship at noon goods finished in the morning.

22) We wanted to use our old booths, in conjunction with the new system.

Everyone agreed that if we could meet these requirements, we would have something.

We called in an advisory engineer who had worked on a finishing system for another concern, using lacquer. He could give us the details of this system or draw up what we requested, but he could not dope out a system to meet our needs. We became discouraged.

Finally, our general manager gave up trying to buy a system and made the development of a system a Sunday work hobby as he termed it.

The first determination was the rate of travel needed to produce 200 sets or 1,200 pieces per 8-hours; for a surety factor, the speed was set for 264 sets or 1,320 pieces to be finished complete.

Next we insisted upon securing from the material suppliers, guarantees as to the length of time for drying, and at what temperatures and humidity. This gave the length of the ovens; adding the space for operators gave the entire conveyor length.

About a year and half later the announcement was made that all requirements could be met. A conveyor company was called in and asked if they could build the equipment on the plans developed and guarantee the mechanical operation. After studying the matter and making suggestions to meet some of their standard equipment, the contract was let.

We have had the system in operation for over six months, and are very proud of the results. If we had the business to warrant three shifts, we could turn out over 600 dinette sets, or the equivalent, in 24 hours. We can, using varnish as previously, ship at noon work started the same morning. The system has complied with all 22 requirements we had listed—and it is satisfactory.

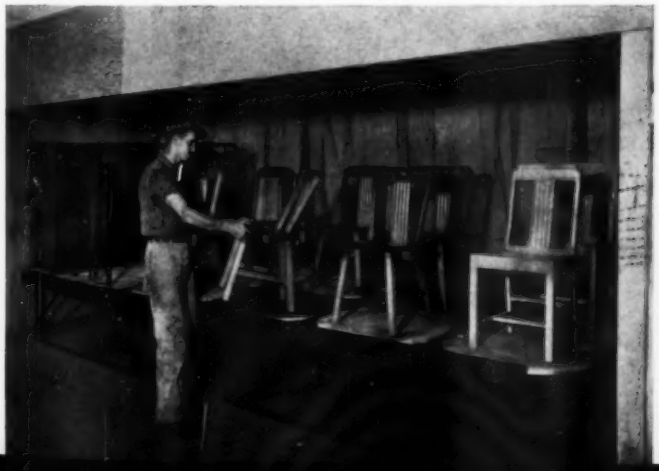
If our volume should drop to the equivalent of 100 sets per day, we finish in the afternoon and the same crew packs the production of the previous day in the morning, and we have retained our saving in labor. Further, we have found the system has saved greatly in packing time, an item we had not expected.

Referring to Fig. 1, the conveyor line is loaded where you see three empty trays in the left foreground of the picture. The conveyor line nearest you is moving toward the far end of the room. The first work on the line includes sanding in the white and the use of repair putty or plastic wood wherever or whenever same may be needed. The last man on this section carefully inspects the sanding and repair puttying before spraying begins at the first booth shown at left in Fig. 2.

As the furniture on trays moves past the 2-man spray booth illustrated at the left in Fig. 2 (C, Fig. 3) it is stained or undercoated, depending upon whether

(Continued on page 52)

Fig. 5—Exit end of final oven; the furniture is now ready to be packed for shipment.



Finishing and Decorating

EVANOIL HEATERS, manufactured by the Evans Products Co., Detroit, Mich., are oil-burning heaters "with fan-forced heat at floor level" for use in homes, offices, and wherever comfortable room heat is required. The cabinets or "stove shells" are attractively finished in a rich brown wrinkle enamel, oven baked. Cabinet feet and grilles of modern artistic design, are finished in chrome aluminum, also oven baked.

Among the production features in the finishing department, outstanding highlights are the continuous conveyor line, conveyor hangers and racks, a 4-man spray booth, and the pressure masking equipment. The continuous conveyor line and the arrangement of spray stations, overhead oven, cooling area and space for loading and unloading the conveyor are shown in the plan view drawing marked Fig. 1. This illustration reveals at a glance the general layout of a compact efficient production unit.

Naturally, the coating of all metal parts is preceded by a thorough cleaning of the surfaces. Parts are washed in mineral spirits, hung up to drain, put through a conveyor drying oven and wiped clean before being hung on the finishing line conveyor.

The first finishing stations on the conveyor line are inside the 4-man spray booth. Two kinds of finishing material are sprayed—brown wrinkle enamel and chrome aluminum. A supply of each material is conveniently close to the spray operators and it is kept thoroughly stirred by air-motored agitators operating inside pressure containers.

Spraying Technique

The present technique of spraying the brown wrinkle finish is to first spray a wet mist coat all over the cabinet and then follow this with a heavy coat. Each cabinet hangs from a special hanger that touches the metal at only four points inside the cab-

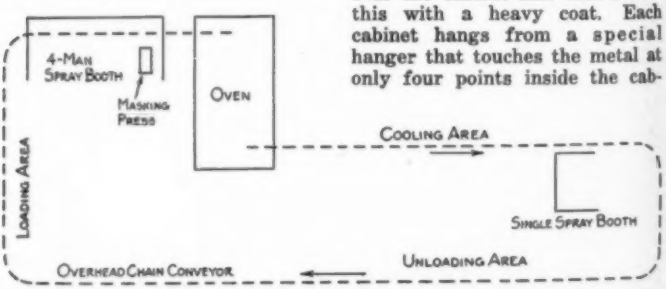


Fig. 1—Plan view of equipment and work stations along the finish conveyor line.

Cabinets for Oil Heaters

BY W. H. ROHR

Fig. 2—(Right) Notice, at the extreme right, masking press is in position for quickly spraying the rim of a top grille finished in chrome aluminum.

Fig. 3—(Below) View of all four spray operators at work in 4-man spray booth. At right, the mask has been lifted from a top grille to show the rim sprayed with brown wrinkle enamel.

inet. Coil springs cause the two pairs of arms of each hanger to spread outward and upward with sufficient pressure to support the entire cabinet. The hangers are of such design that cabinets can be hung on the conveyor and removed quickly and easily.

Each hanger is hung to a conveyor hook which has a 4-direction swivel joint, the purpose of which is to present the flat sides of the cabinets to spray operators. In other words, when the spray operator starts to spray, he has a flat side of the cabinet presented to him parallel with the line of conveyor travel, which is the most natural position for efficient spraying. Then, when he has sprayed one side and turns the hanger to spray another side, the swivel turns exactly 90° (¼ of a complete turn) and stops, thus presenting another side in correct position for spraying. This is continued until all four sides have been sprayed in turn, each flat surface always being parallel with the direction of the conveyor travel while being sprayed.

Sprayed cabinets then travel untouched through the remainder of the booth and pass upward into an overhead oven. Passage through the oven, while the conveyor doubles back and forth a number of times, requires about 11 minutes. A temperature of 450°F. is maintained in the oven.

Leaving the overhead oven, the conveyor descends to a lower level and travels along a straight line for a sufficient distance to permit the cabinets to become cool enough to be handled. By this time the cabinets have reached a one-man spray booth (Fig. 5) wherein the floor grilles are

Fig. 4—Conveyor loaded with finished cabinets coming from the oven in background.

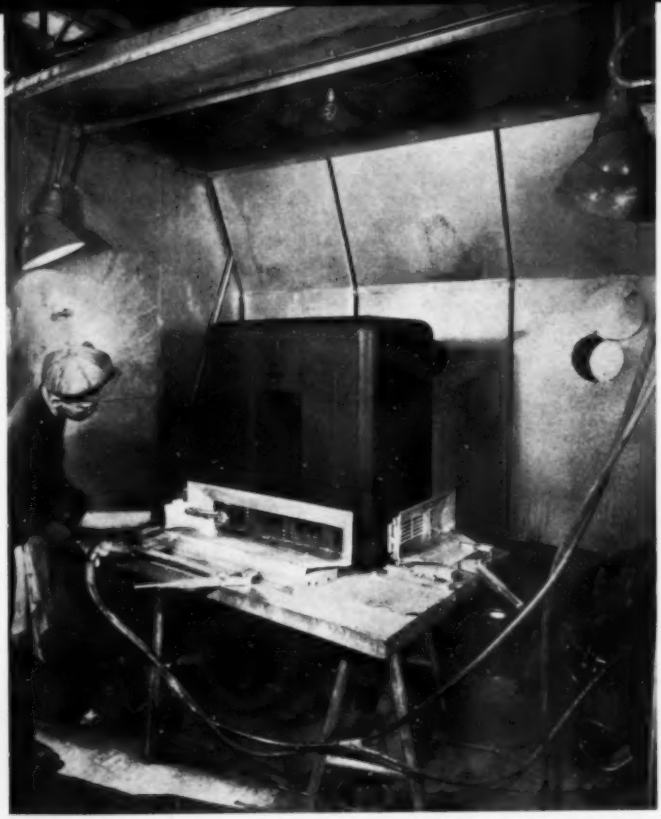


Fig. 5—Here the operator is spraying floor grilles with chrome aluminum while adjoining surfaces of the cabinet, finished in brown wrinkle enamel, are well masked.

sprayed with chrome aluminum finish through special masks.

Masking and Spraying Grilles

A perfect view of an operator spraying the floor grilles near the edges of three sides of a cabinet appears in Fig. 5. These grilles are sprayed with chrome aluminum to give a contrasting ornamental effect and to emphasize the position of the grilles, which is an outstanding feature of the completed heaters.

The masks are made entirely of metal. They are accurately machined and carefully mounted so they operate easily and quickly by eccentric clamps fitted with convenient levers. With this equipment the operator can place a cabinet into position, clamp the masks around the grilles, spray the grilles and release the cabinet in short order; and he does a

clean-cut accurate job on every cabinet.

The finishing of the large top grilles is an interesting operation wherein the use of another special pressure masking device is used. The entire grille area forms the larger part of the top of the cabinet. The grille itself is finished in chrome aluminum while its outer rim, 2 or 3-in. in width, is finished in brown wrinkle enamel. These tops are first sprayed with chrome aluminum. Then they are delivered to spray man No. 4 in the large spray booth, as shown at right in Figs. 2 and 3.

This operator promptly places the grille top on the table of what looks like a small hydraulic press. It is a press but it is operated by compressed air. A steel form the exact size and shape of the area to be masked drops into place, pressure is applied to make it fit tightly all around the edges, and the operator sprays brown wrinkle finishing material around the exposed outside edges. Then the mask is raised clear of the work and the sprayed panel is hung on the conveyor which carries it through the oven.

The pressure mask assures a sharp clean line of division where the brown wrinkle finish meets the smooth chrome aluminum color. It operates with precision accuracy every time and it permits the operator to work rapidly. Of course, the viscosity of the material must be suitable for this type of work and the operator must be careful to avoid piling on excess material when he sprays these masked tops. Otherwise some of the brown wrinkle finishing material would have a tendency to overrun the chrome aluminum area a little at some points. Occasionally the operator wipes the edges of the masking plate with a cloth moistened in thinner to remove overspray.

OAK FURNITURE IN LIMELIGHT

Oak takes the limelight in a new, light tawney finish and is used to fashion this sturdy desk and chair—part of a complete living room grouping comprised of upholstered and occasional pieces, featured at the Winter National Home Furnishings Market at the American Furniture Mart.

Among the many interesting new details of this grouping are the low relief carving on the apron of the upholstered chair, the black iron-type drawer pulls, the touches of carving on the base of the desk and occasional pieces, and the neatly turned desk chair. Photograph, courtesy of American Furniture Mart.

Small Parts Are Loaded on Racks for Spraying

In addition to the cabinets or "stove shells," there are many smaller parts such as doors, shutters, baffles, feet, etc., to be finished. Some of these are finished in brown wrinkle and some are sprayed with chrome aluminum. These smaller parts are hung in multiple to the iron pegs of special iron racks which, in turn, are hung to conveyor hangers. Here is where the productive capacity of the conveyorized finishing system has been increased tremendously.

The racks for holding small parts are simple in design, with all parts welded together, and they are easily cleaned when necessary in a paint-stripping tank. If you will think of a squared hoop 24 to 28-in. across, made of 5/16-in. round iron, with a few cross members of the same size and with iron pegs also the same size, and about 2 or 3-in. long, protruding at an angle from one flat side, you will have a fairly accurate picture of one of these racks.

After all finishing operations have been completed, the finished parts are removed from the conveyor and placed on an assembly line—a wide slat conveyor—where the heaters are completely assembled and packed ready for shipment. The entire plant operates on an economical and efficient production basis, turning out quality products which are attractively finished and guaranteed for dependability over a long period of time.

Automotive Finishes

NITROCELLULOSE lacquers and synthetic resin finishes will both get their share of the spotlight when the 1940 passenger car models make their appearance on the roads. No sharp trend is seen this year toward either type of finish. Among the leading car makes, Chrysler, Ford, Mercury, Lincoln-Zephyr, Nash, and Willys will use synthetic resin finishes. All General Motors units, Hudson, and Packard will be finished with conventional lacquers. Studebaker divides its line, using synthetic resins for Champions and nitrocellulose for Commanders and Presidents.

In the field of truck production, the synthetic resins will be used almost exclusively. Synthetic base undercoats will be widely used under the synthetic finishes, and in some cases under nitrocellulose lacquers as well.

An interesting trend is seen in the use of larger quantities of flexible finishes, particularly on parts that are subjected to accidental distortion, constant vibration, or intermittent abrasive action.

Finishes other than lacquers are receiving increased attention, too. Some work is being done on the plating of black cadmium coatings on hardware, and plastic coatings are also being studied experimentally for this purpose. —*Solvent News.*

Material Handling and Storage Carriers

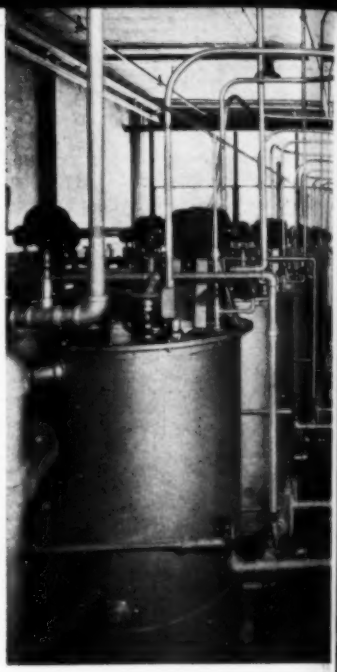
Sectionalized work carriers of standardized dimensions and construction, yet so flexible in combination that they may be used for interchangeable storage and handling of almost any type of product, reducing costs, conserving space, preventing damage to parts, etc., during process, assembly, inter-department or even inter-factory transit, are announced by Mechanical Handling Systems, Inc., 4700 Nancy Ave., Detroit, Mich. The novel work carriers are of arc-welded square steel tubing for light weight, yet sufficiently strong to handle loads up to 3000-lbs.

Stove Company Installs Paint Drier

The Newark Stove Co., Newark, Ohio, has purchased, from Ferro Enamel Corp., Cleveland, Ohio, a continuous overhead conveyor-type synthetic paint baking oven and a complete lot of spraying equipment, including a 12-ft. water-wash booth. The oven will be capable of baking at temperatures up to 500°F.

This is the final installment of a 2-part article wherein the author recommends Controlled Finishing as a solution for many problems encountered in production plants.

BY L. W. LAMMIMAN
Service Engineer, The DeVilbiss Co.

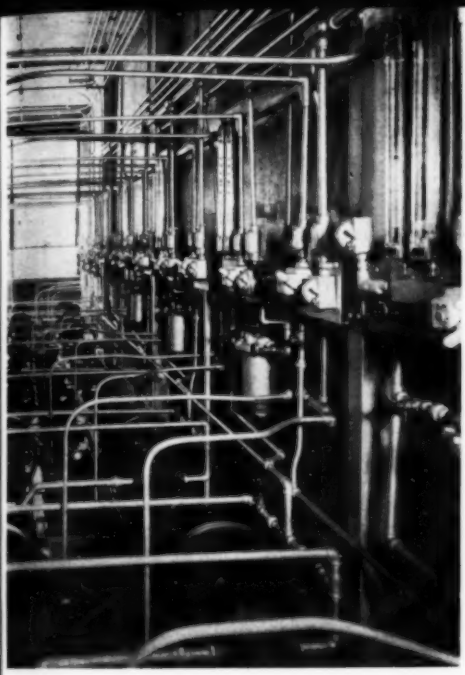


Finishing Room Control

IN ANALYZING many cases of so-called spray gun or material trouble, it has been found that a small diameter air hose was being used which was "starving" the spray gun, and this condition was reflected in the finish obtained. Although the air passages in spray guns have been enlarged from time to time to insure the proper volume of air reaching the air cap, this improvement is too frequently offset by the use of too small size air hose. *After all, it is at the nozzle of the spray gun that the proper volume and pressure of air is really required.*

Air pressure drop is the difference between pressures at the point in air supply line at which air hose is connected and the actual pressure gauge reading at spray gun. The amount of pressure drop which occurs in various lengths of ¼ and 5/16-in. air hose are shown in the accompanying table (see page 24).

One investigation of what was considered to be spray gun or material trouble disclosed the fact that a small diameter air hose was being used. The operator swore that he was using 105-lbs. of air pressure (a much higher



The pump and control section of a spray painting installation that is engineered and equipped for efficient dependable operation and accurate control in an automobile plant. Photograph, courtesy of The DeVilbiss Company.

rol Produces Uniform Results

pressure than would be recommended for his material) yet this pressure was not sufficient to properly atomize the material. A test gauge was attached to the air inlet on the gun and it was found at that point the air pressure was 48 lbs. He was spending hours of labor sanding and rubbing the finish produced because of inadequate pressure. This was eliminated as soon as his small air hose was replaced with one of the proper size.

There are, of course, other causes for loss of volume and pressure in an air line. These include a rusty pipe, leaky valves and connections in the air line, old hose and worn or loose fitting hose connections. But air hose of improper diameter and length may be a contributing cause by "starving" the spray gun and causing a faulty finish. Proper allowance for pressure drop should always be made.

Master Regulation of Air Pressure

Where there are several operators grouped on a production system, master regulation is recommended. A line should be run

Size of Air Hose Inside Diameter	5-foot length	10-foot length	15-foot length	20-foot length	25-foot length	50-foot length
1/4-inch	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
At 40 lbs. pressure	6	8	9½	11	12¾	24
At 50 lbs. pressure	7½	10	12	14	16	28
At 60 lbs. pressure	9	12½	14½	16¾	19	31
At 70 lbs. pressure	10¾	14½	17	19½	22½	34
At 80 lbs. pressure	12¼	16½	19½	22½	25½	37
At 90 lbs. pressure	14	18¾	22	25¼	29	39½
5/16-inch						
At 40 lbs. pressure	2¼	2¾	3¼	3½	4	8½
At 50 lbs. pressure	3	3½	4	4½	5	10
At 60 lbs. pressure	3¾	4½	5	5½	6	11½
At 70 lbs. pressure	4½	5¼	6	6¾	7¼	13
At 80 lbs. pressure	5½	6¼	7	8	8¾	14½
At 90 lbs. pressure	6½	7½	8½	9½	10½	16

This table shows how much of a drop in air pressure may be expected from different lengths of ¼-in. and 5/16-in. I.D. air hose, when it is used with a spray gun fitted with an air cup that consumes about 12-cu.ft. of air per minute at 60-lbs. pressure.

from the main air line to a header located immediately over the operators. The hook-up leading from the main air line should enter the header in a central location. The master regulator should be located in the line between the main air line and the header. The regulator must be large enough to pass sufficient air to the spray guns being used.

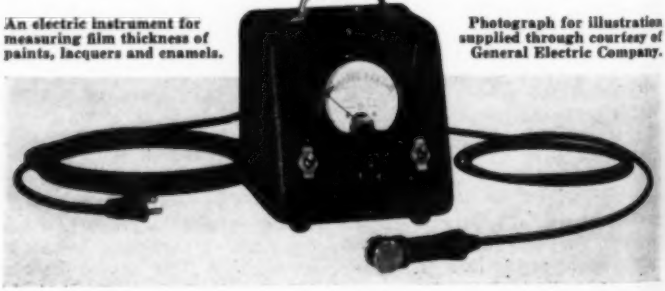
With a master regulator controlling the air, all operators have the same atomizing pressure, and products are sprayed with a uniform finish. This eliminates the tendency of individual spray operators to adjust air pressures to suit their own ideas. Control here prevents uniformly mixed materials from being sprayed with widely varying air pressures.

Where several operators are using air regulated by one master regulator, all air hose should be of the same size and length. Each operator then has the same drop in air pressure between the air outlet and the spray gun.

It is good policy to install an air condenser at each air outlet; indeed this is necessary in some localities where a high water content is in the air at all times of the year.

Control of Film Thickness

With fluid and air pressure uniformly controlled and a uniform spraying technique employed, the



An electric instrument for measuring film thickness of paints, lacquers and enamels.

Photograph for illustration supplied through courtesy of General Electric Company.

TO THOSE WHO SHIP IN THE PRIME COAT

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STEEL sash manufacturers and others who ship their products in the prime coat, will find that the addition of Lionoil greatly increases the rust-protecting qualities of any oil-base primer. Provides waterproofing qualities obtainable in no other way. Lionoil also has many other important industrial uses . . . as a wood preservative, sealer, bronzing liquid, etc. Test Lionoil yourself . . . in your own plant. Write for free sample.

DETROIT, MICHIGAN **BERRY BROTHERS** WALKERVILLE, ONT.

BERRY BROTHERS **Lionoil**

A RUST PREVENTIVE • WOOD PRESERVATIVE • PRIMER

finish should result in uniform thickness. A check of the film thickness, as applied by different operators working haphazardly, disclosed variances hardly believable. If a film thickness of .001 or .0015-in. is sufficient for beautification or protection, anything in excess of this merely increases the cost. Electrical instruments for measuring film thickness on metal surfaces are available. They should be a part of the equipment in every finishing control laboratory.

Control of Spray Equipment

Control of spray equipment includes supervision of all spray guns, tanks, transformers, air and fluid hose, hose connections, and all repair parts needed for equipment upkeep. A central control system for all spray equipment used in the various departments is really the best plan. It is a fact that spray equipment is too often abused and neglected. Spray guns, tanks, transformers and hose are allowed to go uncleaned for weeks. When such conditions are permitted to continue for even a short time, parts of the equipment get into such a condition that replacement is necessary. Parts are replaced that would have functioned satisfactorily if they had been properly cleaned and reassembled in the equipment.

Precision tools are carefully handled and cared for. A spray gun belongs in that category.

In several plants where the central control system for spray equipment is used, inventories on repair parts have been reduced to one-fourth, and the cost of repairs to one-third of previous costs. Spray equipment requires care and good housekeeping. The central control system should be under the supervision of a man who understands this type of equipment. He should know something about the application of materials, and be capable enough to pass judgment on the equipment and know when it is working satisfactorily.

Paint-circulating systems are used in the smaller factories too—where the volume and character of production justifies it.

Control of Exhaust System

Control of exhaust and replacement air is, in effect, automatic if the exhaust system is designed as a complete unit system for the most efficient removal of spray vapors from the finishing room.

To insure uniformity in the finished products, all elements of the exhaust system (such as the spray booth, fan or blower, piping, etc.) should be so designed as to function effectively as a complete unit system rather than merely as individual parts. One of the numerous requirements, for example, is that a proper velocity of air be

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DETROIT, MICHIGAN

provided at all points in the spray booth regardless of the location of the outlet.

The spray booth in itself is just one element of the complete exhaust system. When engineered as a complete unit, designed to fit the individual requirements of the particular plant in which it is located, an exhaust system insures cleaner work, improved and safe working conditions, and lower insurance rates. Among the many factors taken into consideration when a spray booth is built into an exhaust system, are the location and size of air intakes to furnish a proper percentage of fresh air to replace the exhausted air, tempering of fresh air, etc. These factors of efficiency when built into a properly designed complete unit system, minimize the degree of control necessary in exhaust, replacement air, temperature, and cleanliness in the finishing room.

OXBLOOD FINISH ON MAHOGANY

This combination chest and dresser has four small utility drawers equipped with tiny ivory-white pulls which effectively contrast with the deep oxblood finish. An interesting new decorative note is the use of contrasting mahogany squares, in checkerboard design on the small drawer fronts. The same treatment is repeated on the headboard of the bed. Pink and ivory striped satin upholstery on the cane-backed chair lend a glamorous touch.

Photograph courtesy of American Furniture Mart, Chicago, Ill.

Finishing an Exact Science; Control of All Factors

With the trend toward the application of finishes becoming more of an exact science and less rule of thumb, and with the supervision of finishing in the hands of technically trained men, more and more progressive plants are increasing the efficiency of their finishing rooms through the use of control methods.

It is to the interest of executives in industries whose products are spray-finished, to consider the advantages of control methods, and to see that spray gun operators are carefully selected, properly instructed, adequately safeguarded and supplied with the best of spray and exhaust equipment to do good work easily and economically. Any manufacturing plant in which key men do not fully understand spray equipment and its control, should have its men trained in this work. One of the large spray equipment manufacturers conducts a school in which these methods are taught, and has proven very helpful to those who need such assistance.

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BEAUTY A beautiful porcelain like finish in white and colors to enhance the brilliance of many products.

DURABILITY A hard, tough, durable finish offering Alkali and mar resistance.

APPLICATION One coat sprayed is sufficient on most articles.

BAKING Designed to meet your requirements with a range of 15 minutes at 300° F. to 1 hour at 250° F.

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THE SHIELD OF PROTECTION

Selection, Purchase, Use of Industrial Finishes

BY PAUL S. KENNEDY
Murphy Varnish Company

Excerpts from an address by Paul S. Kennedy, Chairman of the Natl. Industrial Sales Committee, at the Annual Convention of the Natl. Paint, Varnish and Lacquer Assn. which was held Oct. 31 to Nov. 3, 1939, in San Francisco, Calif.

IN THE DAYS when varnish was a more generally employed industrial product, there was a general impression among some purchasers and users that "body" or viscosity was a standard of value; that a heavy-bodied varnish was a better buy than a thinner one. So, when China wood oil came into common use, and the formulators discovered what tremendously heavy bodies could be secured by cooking China wood oil and common rosin together, the first major price disruption occurred.

These combinations of wood oil and rosin, which were privately called false-bodied or inflated varnishes, would take an abnormally high content of volatile thinner, and yet maintain a molasses-like consistency, plus a beautiful color. Such attractive looking products could not fail to take hold; but because of the latitude afforded by their relatively low cost, it was not long before there was such a tremendous discrepancy in quotations by various manufacturers that many buyers became distrustful and lost respect for the integrity of the industry as a whole.

It mattered not that a straight China wood oil-rosin varnish might be in competition with one of an expensive fossil-gum base. Both gave a finish . . . . This mistaken idea of judging the value of a clear product by its viscosity was paralleled by another which rated the worth of a pigmented product by its weight . . . .

Nitrocellulose lacquer came into common use nearly 20 years ago, but even to this day some buyers rate its value according to the amount of thinner that can be added to it, disregarding the fact that only the solids remain on the job, and that the more thinner they add, the more money they blow off into the air.

•PRODUCE A FINER FINISH with Du-Pros Shellac

Du-Pros Strictly Pure Shellac contains only premium grade pure shellac gum and high test denatured alcohol. These high grade ingredients are double processed by the original Du-Pros method which insures the finest solution. As a result, Du-Pros spreads out in a smoother, finer film.

Every gallon of Du-Pros Strictly Pure Shellac is freshly made when shipped, insuring hard drying and good color. Du-Pros sands crisply and freely.

Since Du-Pros is low priced, has high solids, and reduces with alcohol, it is the most economical high grade sealer you can use. The Du-Pros brand insures a finer finish.

Quality and economy have made Du-Pros the finest shellac for over a third of a century. . . . Order a trial barrel today.

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THAT NEW DULUX FURNITURE FINISH CERTAINLY HAS SMOOTHED OUT THE KINKS IN OUR PRODUCTION LINE.
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DULUX *for Furniture Cuts Costs Two Ways:*

1. **Material savings up to 30% are possible. Because of its unusual build, you need only one coat instead of the usual two with lacquer.**

2. **Production time is greatly reduced. Because it dries quickly at elevated temperatures—2 hours at 150°—DULUX gives you a 5½-7½ hour finishing schedule from sealer to packer . . . instead of the usual 29-43 hour schedule for varnish and the 22-28 hour schedule for lacquer. Also saves time because it's so easy to rub.**

DULUX—Keeps Its Beauty

A beautiful, clear film with excellent depth of appearance—DULUX *keeps* its original beauty.

It resists cold-cracking, scratching, printing, marring, water and alcohol like high grade lacquers... far superior to ordinary varnishes.

A finish with the flow and build of varnish and the speed and quality of lacquer—DULUX offers you greatly stepped-up efficiency and new production-line economy. For full information, write to E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington, Delaware. Canada: Canadian Industries, Ltd., Toronto. Great Britain: Nobel Chemical Finishes, London, England.

LUX FOR FURNITURE

BETTER THINGS FOR BETTER LIVING THROUGH CHEMISTRY

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Easily - Quickly - Economically

USE **DESPATCH** Controlled Combustion

DIRECT AIR HEATERS

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- ✓ LOWER FUEL COST
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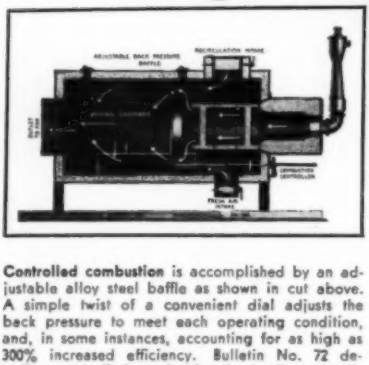

Controlled combustion is accomplished by an adjustable alloy steel baffle as shown in cut above. A simple twist of a convenient dial adjusts the back pressure to meet each operating condition, and, in some instances, accounting for as high as 300% increased efficiency. Bulletin No. 72 describes **controlled combustion** in detail, and tells why it eliminates "stink" from unburned gases and incomplete combustion.

It is easy to convert your old outdated finish baking oven into a modern high-speed unit if you use a compact Despatch **Controlled Combustion** Direct Fired Air Heater.

You can improve the quality of your finishes—eliminate rejects—and add "eye appeal" to your products. In addition, you can cut your processing time and fuel costs up to 50%.

Write for new Despatch Air Heater bulletin No. 72 today, and let Despatch engineers tell you how quickly you can modernize your finish baking and drying ovens.

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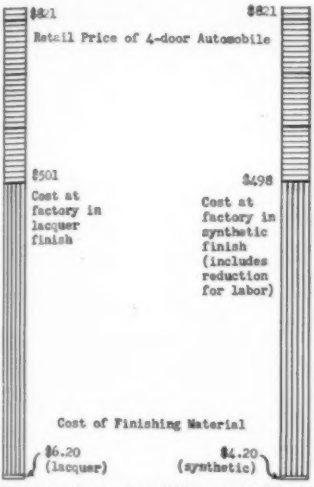

Chart 1—Cost of finishing material on average low-priced automobile shows that lacquer finishing material represents only 1.24 (1¼) % of factory cost and .76 (¾ of 1) % of selling price; while synthetic enamel is .84% of factory cost and .51 (½ of 1) % of selling price.

These examples demonstrate the logic in reaching a decision to sell on a volume basis, rather than on an intensive value basis (and an equally logical reason for many purchasing agents to buy on a strictly price basis) in short, giving the customer what he sincerely believes he wants, rather than attempting a course of re-education, plus the handicap of a higher selling price. The more gallonage a manufacturer can produce, the greater is his efficiency of both man power and machine, as well as raw material purchasing economies; so why take the initiative to cut volume when your customer is contented with things as they are?

Shortly after the World War, the advent of nitrocellulose as an important finishing material compelled our industry to fight for its competitive existence by organizing large and competent technical staffs. For the first time the direction of formulation and manufacturing passed from the more or less practical man to scientific laboratory control.

Industrial Finishes Must Be Carefully Formulated

Industrial finishes today characterize the scientific end of the paint business. With most industrial finishing prospects, a preliminary study has to be made first. Then a product is carefully formulated, which sometimes may involve actual research. Next it is made up and tested, but rarely by a standard routine method. Usually it is put through the paces that its special adaption requires, and extreme care is taken to accurately adjust such factors as solids, viscosity, color, etc. More often than not, an expert service man will start it into use and likely give additional personal help over a period of time.

In fact, this combination of preliminary survey, studied formulation, individual testing, and subsequent production attention might be lumped under the single word "service"; and because of the vagaries with which we are all familiar, there is no possible way to predict what this service may cost over a year's time. The best that can be done is to average it from past experience. But it has been repeatedly and conclusively demonstrated that while it is an intangible cost, it is a most positive and appreciable one, and there should be unanimous

agreement that it should be fully included where it belongs; namely, in the selling price of that specific product.

So we emphasize the distinction that an industrial finishing material, properly made and intelligently serviced, should not be priced on the same basis as staple production.

The intelligent supply of industrial finishing materials does not depend upon the size of a concern. In some cases a comparatively small company may be able to furnish more adaptable material than a large firm, or to render more prompt or more individual service.

Consider the Company From Whom You Buy

Two factors should be uppermost in the purchasing agent's mind when considering the buying of Industrial finishing materials: 1) the character, background and service facilities of the supplier; 2) what the eventual cost of a finishing product may be, rather than its cost in the container.

A manufacturing concern may enjoy the highest character, and yet definitely lack the background or facilities to handle industrial business properly. Few will admit that they cannot do just as well as the other fellow in the production of any kind of finishing material; but in the final analysis, successful experience in continued supply is the best recommendation.

As regards buying on package price, this is often a serious fallacy. For instance, I know of a finishing product, marketed to the metal industry, which covers at least twice the square footage other materials for the same purpose do; yet there is frequent pressure from the purchasing department because of its relatively higher initial cost. Evidently they are not aware of the eventual cost.

While this may be an extreme case, it can apply relatively to many users—and it may be worth looking into. Such an investigation should include not only the actual mileage of the material, but cost of labor of application and subsequent handling; also rejects, and the ease and cost of repairs. Most important of all, from a selling standpoint, is the appearance of the finished object, and its service in use.

Cost of Fine Finish Is Small Percent of Product Cost

A fine finish is often the deciding factor in a sale. With women playing such an important part in the purchase of consumer's goods, eye appeal is frequently vital; and the subsequent performance of the finish may be

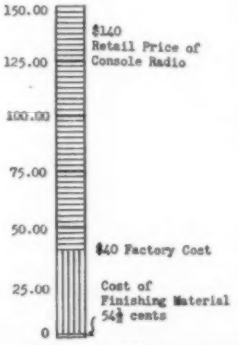

Chart 2—Cost of finishing material on an average console radio cabinet represents only 1.36 (1 1/3) % of factory cost or .39 (2/5) % of the selling price.

EGYPTIAN HIGH-BAKE N. F. R.

A finish which possesses *many* characteristics, any one of which would classify most finishing materials as a good product. For instance—

1. **A multi-colored finish baked in one operation. Primers and undercoats which air dry yet bake as a composite finish when used with Egyptian High-Bake N. F. R.**

2. **A clear High-Bake N. F. R. for use on rare metals and plated pieces as a protection against scratching, tarnishing, etc.**

3. **Chemical resistance.**

4. **Rust inhibitive properties when used as a complete finishing system.**

These and many other advantages of Egyptian High-Bake N. F. R. make it one of the outstanding products in the field of finishing. Write for further information and recommendations regarding its use for your own particular requirements.

EGYPTIAN FINISHES

THE EGYPTIAN LACQUER MFG. COMPANY

ROCKEFELLER CENTER, NEW YORK

equally so. A fine automobile may be condemned because a primer causes chipping or flaking; or because a pigmented finish chalks unduly and gives a recurring scummy appearance. A radio finish may crack because it is sensitive to wood moisture; or an expensive instrument may rust or corrode because the finish is not sufficiently resistant.

Almost without exception, the cost of the finishing material on a unit represents but an insignificant part of the total. Hence,

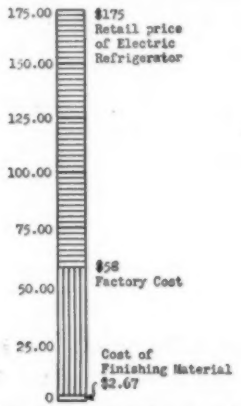

Chart 3—Cost of finishing material on an average electric refrigerator is only 4.6 (4¼) % of factory cost and 1.52 (1½) % of the selling price.

with such a tremendous leverage, it can be the shortest sighted kind of economy to attempt too close buying with many industrial finishes—because the relative increase, as related to total cost, may hardly be noticed; it might even save money in the end, or permit an increased selling price.

In order to illustrate and emphasize these points, I wish to call your attention to charts 1, 2, 3 and 4, as shown in this article.

Three Popular Products and Their Finish Costs

Probably the three outstanding desires of the average American family are to own an automobile, an electric refrigerator, and a radio. Finish is obviously an important sales asset with each, and I have broken down authentic-experience cost figures of national leading merchandisers to show you the comparison of finishing material costs to factory costs and selling prices.

First, consider a 4-door automobile, finished with either lacquer or synthetic enamel. The material cost of finishing with lacquer averages $6.20, representing 1.24% of the factory cost, or .76% (about ¾ of 1%) of the selling price. Finished with synthetic enamel, the finishing material represents $4.20, which is .84% of the factory cost, and .51% (about ½ of 1%) of the selling price.

Second, take a console radio cabinet finished complete with stain, filler and lacquer. The total finishing material cost is only 54½ cents, representing 1.36% of the factory cost, or .39% of the selling price.

Third, look at an electric refrigerator. The total cost of finishing material is $2.85, which represents 4.6% of the factory cost, or 1.62% of the selling price.

Certainly in all three of these instances, the cost of the finishing material is of such minor proportion to its contributing importance as to deserve real study.

At this point I would like to say that we contemplated a chart

A smart, trim figure contributes much toward feminine comeliness .... but it takes the deft touch of make-up to acquire the glamorous beauty that captures admiration.

With commercial products good lines likewise play their part .... but again it takes the fine touch of make-up or finish to capture that all-important admiration that is synonymous with sales.

Let us tell you how our Creative Studio can add the capturing element to your products. No obligation whatever to reputable firms.

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Manufacturers of Finishing Materials
ROCKFORD • ILLINOIS

NO TAMPERING WITH QUALITY

which would compare the total sales of industrial finishes from July 1, 1938, to July 1, 1939, and the total selling price of the products on which they were used during the same period. To break this down, proved to be more of a task than was bargained for—but various key figures indicated that a ratio of finishing material cost to selling price of product was about 1 to 100, or 1% was conservatively accurate.

Breakdown of Labor and Material Costs (Chart 4)

The chart marked No. 4 should be of special interest to the purchasing agent. This shows a breakdown of the labor and material cost involved in the production of an average electric refrigerator.

Below the axis line is a space to record losses caused by defective results of any kind, which require correction and which are in excess of the normal expectancy losses.

Both labor and material must be considered as a unit in such necessary corrective work, so let us say that this cost below the line amounts to 5%. But if we transfer this to the diagram above the line (the one at the extreme right showing material cost) we note that this 5% increases the material cost of itself 12½%. If the corrective loss amounts to 10%, same represents an increase in material cost of 25%. If a 20% loss is sustained, it means an increase of 50% in the material cost.

To express the same thing in another way, if you will check the block representing normal material cost against the left vertical of Chart 4, you will find it to be

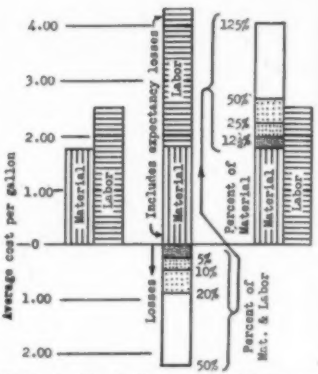


Chart 4—Illustrating a breakdown of the labor and material cost involved in the production of an average electric refrigerator.

Below the axis line is space to record losses caused by defective results of any kind, which require correction—and which exceed expectancy losses.

$1.81. If you will check it after the 5% loss has been added to it, you will find it amounts to $2.03. After addition of 10% loss, to $2.26; after 20% loss, to $2.79.

It all means that in using this finishing material for which you paid $1.81 a gallon, should you incur a shop loss of 20%, you would still come out even if you paid $2.79 a gallon for material which gave you no difficulty. If the loss is 10%, you come out even by paying a price of $2.26; or if 5%, by paying a price of $2.03. This affords a rather simple illustration of figuring the ultimate cost of finishing material.

Air Compressor Folder

A new 6-page folder describes and illustrates the Empire Pressure King, a 4-cylinder air compressor manufactured by the Empire Compressor Mfg. Co., Reading, Cincinnati, Ohio.

Do not fail to get the Big January Review Issue . .

Every user of materials, supplies and equipment having anything to do with product finishing will want to see this Big January Review Edition of INDUSTRIAL FINISHING magazine.

New developments in finishes that have passed the laboratory stage and have been proved by tests to be all that is claimed for them, will be reviewed in this issue. It will be thorough and practical in its editorial treatment, and will prove a handy reference book throughout the year. Don't fail to get a copy.

ADVERTISING VALUE, TOO

The fact that this Annual Edition will arouse unusual interest, affords a splendid opportunity for manufacturers to point out the merits of their finishes and equipment. Display advertising is a good avenue of approach to potential customers. Make arrangements NOW for an attractive, sales-stimulating ad on finishes, or finishing equipment and supplies.

Industrial FINISHING

222 East Ohio St.
Indianapolis, Ind.

Decorative Sprayer

Designed to serve the needs of a broad field of industrial decorative work, a newly perfected spray gun supplies a range of service from the drawing of a fine pencil line to the laying of a broad soft spray and bridges the gap between a large artist's air brush and the small production or touch-up spray gun.

Especially suited is this new spray gun to delicate tinting, fine stenciling, shading, blending and highlighting . . . . an excellent tool for those engaged in fine decorative finishing, either in new or refinished products. It is ideal for fine touch-up work on automobiles, furniture and appliances, and its low air consumption adapts it well to the service departments of distributors and dealers where there is a small or limited volume of compressed air available.

Strongly built, this new spray gun is at the same time light in weight. It fits the hand easily, permitting the forefinger to rest naturally upon the trigger of the gun to effect ready control.

Available in a choice of three nozzle combinations, which are adjustable for either round or fan spray applications, the gun offers a maximum spray width of 3-in. Control of both width and density of spray is accurate and simple. . . . A product of The DeVilbiss Co., of Toledo, Ohio.

Type AG gun for decorative spraying.

New...

MATERIALS SUPPLIES EQUIPMENT

Fluorescent Lighting Unit for Industry

The latest development in fluorescent lighting for industrial and commercial purposes, is the announcement of the RLM Standards Institute of the establishment of an RLM Specification for a new 48-in. fluorescent twin-lamp porcelain-enamel unit.

In establishing this new specification, the RLM Standards Institute is carrying out its stated objectives which are to establish standard specifications for lighting equipment and authorize the use of the identifying RLM Label on all units conforming to these specifications, as attested to by the Electrical Testing Laboratories of New York.

The rapid development and accelerating demand for fluorescent lighting for industrial and commercial purposes has made it desirable that the Institute take action in establishing a standard specification for a fluorescent lighting unit.

The new RLM Specification sets up standards for a new type of fluorescent lighting unit especially designed for general illumination of industrial and commercial locations.

Six important features in the new RLM fluorescent lighting unit speci-

TOUSEY . . Announces a New Development in Finish

No. 68 LACQUER BRONZING LIQUID

The low priced Bronzing Liquid with high priced qualities. It will—

(1) Hold in solution with any Gold, Silver or Copper Bronze without reacting.

(2) Reduce 150% with Thinner for spray application.

(3) Withstand 200 hours of Salt Spray without the finish being affected.

Prices and samples will be furnished on request to the

TOUSEY VARNISH COMPANY

520 WEST 25th STREET **CHICAGO, ILLINOIS**

Varnishes—Enamels—Lacquers—Synthetics : Since 1885

READ THIS NEW AND HELPFUL FOLDER ON

METAL CLEANING

. . . it's free!

Sunoco Spirits meets all industrial demands for an efficient, economical solvent . . . write

SUN OIL CO., Dept. S-2, Phila.

SUNOCO SPIRITS

SUN OILS

PETROLEUM PRODUCTS FOR ALL INDUSTRIES

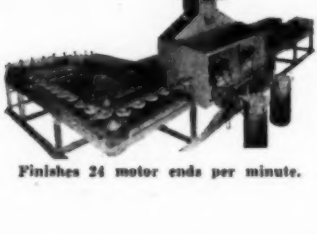
fications are: 1) Porcelain enamel reflecting surface for diffusion and durability; 2) light output efficiency of 78%; 3) a cut-off angle of 17½° and closed ends to minimize glare; 4) use of two 48-in. Mazda fluorescent lamps correctly spaced to insure a more comfortable and efficient light; 5) a new type Underwriter's Laboratory approved auxiliary which is corrected for power factor and flicker; and 6) removal and renewable starting switches located in socket to facilitate inspection and maintenance.

The new units will be available from manufacturers of RLM Lighting Equipment after January 1, 1940. New specifications have been published giving complete information about the unit and may be had by addressing any of the manufacturers or distributors of RLM Lighting Equipment, or by addressing the RLM Standards Institute, 20 N. Wacker Drive, Chicago, Ill.

Automatic Airpainting Unit

Paasche Airbrush Co., 1917 Diversey Parkway, Chicago, Ill., announces the development of a new type automatic airpainting unit, which is illustrated here. Quoting from the company's letter:

"This 'L'-shaped Paasche Conveyor Unit for airpainting motor ends, is used in conjunction with a continuous-type high-temperature drying oven. It is equipped with dual aircoating stations for applying primer and finishing coat. The unit has 158 rotating spindles designed so that the Paasche Automatic Airbrushes coat only when the loaded spindles enter the ventilating booth. Production is 24 motor ends per minute or 11,520 per 8-hour day, when conveyor is operated at an average speed of 18 lineal feet per minute."



Finishes 24 motor ends per minute.

Electric Oven, Cabinet Type

The cabinet-type electric oven illustrated here has a capacity of 43-cu.ft., is thermostatically controlled, and is equipped with signal light and explosion-proof spring catch for the door.

For baking the finish on metal products.

George Koch Sons, Inc., 2112 Pennsylvania St., Evansville, Ind., is the manufacturer. Quoting from a recent letter by Mr. W. A. Koch:

"Although this industrial cabinet oven was originally designed for baking paint on metal products, one of the largest refrigerator manufacturers in the country has ordered an additional 24, after thoroughly testing one of these units with 12 equally distributed thermocouples at

HERE it is!

cannot be marred or scratched

A lacquer finish that cannot be marred or scratched with the thumbnail, or other destructive agencies—a much tougher piece of goods than the ordinary lacquers. It produces a splendid transparent finish of full depth on maple, walnut, gum, mahogany and other cabinet woods . . . It is made in either the Clear Gloss Rubbing or the Satin Finish. Mar Proof Lacquer Sealer is recommended for the first coat.

Send for FREE WORKING SAMPLES

THE SCHAEFER VARNISH COMPANY, Inc.
Louisville — — Kentucky

one time. They are using these ovens to dehydrate the refrigerator units at their service stations throughout the country. So, you can readily see that there are many uses for these ovens that may be thermostatically controlled at any point between 100° and 500°F."

Three Years Without Accident

The Camden, N. J., plant of the Merrimac Division of Monsanto Chemical Co., on Nov. 16, has achieved three years of 3-shift 7-day a week operation without a single lost-time accident.

The plant is managed by John J. Heck. Mr. Heck explained the attainment of the 3-year record as something for which the plant employes deserve the credit.

"Management can only see that equipment and working conditions are designed to be safe," he said. "The men are the ones who have the final answer. When a man is thoughtful of the welfare of his coworkmen, his department becomes a safer place for him and all the members. We work steadily to educate the men to be careful and we find the effort pays excellent returns to the men as well as to the company."

Spray Painting Data Book

The new 1940 Catalog and Data Book on spray painting and finishing equipment is now available upon request to the Binks Mfg. Co., 3114 Carroll Ave., Chicago, Ill.

Consisting of 104 factual and highly illustrated pages, the catalog is organized for ready reference purposes. It gives the answers to everyday finishing problems, reports new developments in spray painting equipment, gives prices, and provides engineering and performance data on all types of spray guns, spray booths, air compressors, painting outfits, extractors, respirators, and hose.

This catalog will be sent free to all responsible parties requesting it upon their company letterhead. Ask for Binks Catalog No. 75.

Portable Drier for Refinish Jobs

Can you advise us who makes an electric driven drier for drying paint on automobiles that have been refinished? We understand that someone makes some kind of a portable drier that can be used for this purpose.—S. P. Co.

We are just wondering if you have in mind a portable "spot baking unit" that uses infra-red ray electric lights. These can be used very effectively for directing intense high baking heat to a portion of the car that has been refinished. No motors or fans are required. Of course, if you wish to bake the finish all over the entire car, you would need enough of these units to surround the car,

Questions Answers

which probably wouldn't be practical. Advertisers in this magazine supply this equipment.

If you have in mind the unit type of heater that is frequently used for heating factories and public buildings—the kind that is enclosed in a cabinet which can be placed on the wall or hung from the ceiling and which contains coils heated by steam, hot water or electricity, and an electric fan to blow the heat into the room—we can suggest the names

WHY LEADING MANUFACTURERS SPECIFY
R756 VARNISH FOR FIR PLYWOOD

R756

1 COAT COVERS
DRIES HARD IN 6-8 HOURS
READY FOR USE
EXCELLENT DURABILITY
UNUSUALLY HIGH GLOSS
EXTRA PALE COLOR

Use over 6001 Sealer for optimum results!

MARTIN VARNISH CO.
900 WEST 49TH PLACE CHICAGO, ILLINOIS

of several makers of such heaters. (Names are given in a letter.)

Unless you have a perfectly clean, dust-free and lint-free room we do not believe that one of these unit heaters would be suitable for your work because it would probably blow dust and dirt onto the wet finish, whereas the infra-red ray baking unit produces more intense heat without any movement of air.

If there is any other type of heating unit that you have in mind, we would like to know about it.—EDITOR.

Pitch Streaks

We have had some difficulty in attempting to stop certain eruptions or blistering through the wood in white pine table tops, after both an undercoater and enamel have been applied. It is more noticeable with the all-white finishes. Close examination reveals that it is not the actual raising of the wood grain; but the raised places appear over the portions of wood which contain more pitchy streaks. We use V. M. & P. naphtha in our undercoater and xylol for thinning our enamel.—S. J. Co.

This is a problem that has bothered finishers and painters for many years. If these pitch streaks are only faint (and not "rich") you may be able to seal them with shellac or some type of good lacquer sealer. You can only determine this by experimenting.

If the tables are painted you might try aluminum paint over these pitchy places. However, if the furniture is later subjected to much heat and if the pitch

Try this
NEW Finish

Used over a primer on all metal objects where a good durable finish is required.

Highest satisfying results are obtained by users.

WALKER'S
CHLORINATED
RUBBER FINISH

—has drying quality of lacquer. Either air dry or force dry—and quality of finish is never destroyed by force drying.

Extreme outdoor durability.

Resists acids and alkalies.

High gloss, but may be modified to a dull finish if desirable.

Send for more details of this excellent finish.

H. V. Walker Co.
ELIZABETH, NEW JERSEY

Finishes that fit your Product

New England Representatives
Brown & Dean Co., Providence, R. I.

streaks are very "rich," you will not be able to remedy this trouble with shellac, lacquer sealer or aluminum paint. The only satisfactory remedy we know of is to cut out the pitch streaks and replace them with wood that contains no pitch. A skillful cabinetmaker can do a neat job of this but it takes time and is therefore expensive.—EDITOR.

Air Conditioning; Odor Removal

THE FUNCTION of modern air conditioning is to perfect the quality of the indoor air in which people work and which they breathe—its temperature, its moisture, its purity and its freshness. The first two have been effectively accomplished by adequate heating and refrigerating equipment and efficient air washers and dehumidifiers. The third, air purity, has been obtained in large measure by improved air filtration—up to the limits of this type of apparatus in removing suspended impurities. Only the art of renewing freshness, or in other words of freeing the air of any perceptible odor has been neglected. It is only recently that this phase of air conditioning has been made commercially practical.

All indoor air—air within the confines of inhabited buildings—becomes contaminated from many sources and must be either entirely discharged and replaced by fresh air from the outside at a definite interval or rate, or must be purified for re-use, and recirculated. All such air cannot be indefinitely recirculated. Certain contaminations, especially non-condensable gases such as carbon dioxide generated by breathing, cannot be extracted from the air—therefore all ventilating systems must discharge a percentage of air. This involves a loss of all heating or cooling, humidifying or dehumidifying and filtering that has been expended on the air that is discharged from the building.

Most systems discharge a large percentage of conditioned air solely because of contamination by odors that render it disagreeable, but which can be eliminated. As this air has been originally heated, or cooled, it is obvious that this work is lost on that portion which must be discharged outdoors. Hence, it is the function of the most economical air conditioning system to minimize the amount discharged, and re-use a maximum of the originally conditioned air, provided such re-used or recirculated air can be maintained at proper purity and freshness.

There is only one way by which odors can be disposed of with certainty. The odor-creating particles of matter must be extracted from the air. That is precisely what the modern odor absorber does, whether the odor be in the form of a gas, vapor or solid. At the same time it is extremely simple in construction, easily applied to any ventilating or air-conditioning system, embodies nothing which can get out of order, requires a minimum of attention, and is reasonable in both initial cost and cost of maintaining at full effectiveness.

One type of odor absorber functions on the identical principle of the U. S. Army gas mask which so successfully met the poison

Thousands of sleds, coasters, and other outside toys

are coated with

LILLY'S TOY FINISHES

WHY?

—because they can withstand the combined attacks of youngsters and weather

Lilly Varnish Company

666 South California Street, Indianapolis, Indiana

Branches: Chicago, Ill.; Grand Rapids, Mich.; Gardner, Mass.

The LILLY COMPANY, High Point, N. C.

Great Britain and Europe: Supply Jenson & Nicholson Laboratories, Stratford, London, England.

AULT & WIBORG

Writes Another Chapter in Industrial Finishing History with

POLYMERIN-100

THE REVOLUTIONARY NEW LOW-BAKE FINISH

The lowest temperature curing characteristics yet achieved in a speed-bake finish

with

remarkable qualities of resistance and durability

HERE ARE SOME OF THE OUTSTAN-
ING ADVANTAGES OF POLYMERIN-100

When *Polymerin*® was announced two years ago, it was the answer to this two-fold challenge: "Can research produce an industrial finish having the production speed of lacquers, and the desirable character-

HERE ARE SOME OF THE OUTSTANDING ADVANTAGES OF POLYMERIN-100

1 POLYMERIN-100 makes possible the lowest-temperature speed-baking schedules yet achieved. These temperatures depend on the type and size of oven, mass of metal involved, and other factors, but *temperatures necessary to obtain a finish with outstanding resistance properties are drastically reduced.*

2 POLYMERIN-100 may be used in conventional ovens. Plants which could not take advantage of the new speed-bake finishes because of the high temperatures involved may now use POLYMERIN-100 to get a finish of exceptional durability. It also brings speed-bake advantages to manufacturers with force-dry equipment by stepping up the heat slightly.

3 POLYMERIN-100 offers excellent qualities of hardness, flexibility, and adhesion. It is extremely TOUGH and resistant to common deteriorants. It resists chipping and scratching.

4 POLYMERIN-100 maintains color. As with high-bake *Polymerin*, its lustrous, glossy surface will help to sell your products, and customers will appreciate the fact that POLYMERIN-100 will *retain* its beauty.

When *Polymerin** was announced two years ago, it was the answer to this two-fold challenge: "Can research produce an industrial finish having the production speed of lacquers, and the desirable characteristics of synthetic resin finishes?" *Polymerin* met these specifications. In the short time since its development, *Polymerin's* remarkable qualities have earned for it unusual acceptance in many industries.

Recognizing its responsibilities as a leader, Ault & Wiborg now announces the answer to the problem of low-bake speed finishing. The answer is POLYMERIN-100—a brand new low-bake finish which offers you remarkable qualities of durability and resistance.

* *Trade Mark Reg. U. S. Pat. Off.*

HOW CAN POLYMERIN-100 HELP YOU?

Use this coupon, or write *today* for further information on the low-bake advantages of this remarkable new finish. Ault & Wiborg Corporation, makers of Polymerin, *the Original Speed-bake Metal Finish.* 75 Varick Street, New York City.

AULT & WIBORG CORPORATION
Dept. I.F.D., 75 Varick Street, New York City
Please send me more information on Polymerin-100.

Name_____

Company_____

Products_____

Address_____

gas emergency during the World War, saving thousands of lives and averting threatening disaster. This principle consists of passing the contaminated air through a bed of granular activated coconut-shell carbon, a form of carbon which has the special property of being able to absorb and hold all condensable gases and vapors that come in contact with its activated surface. When the carbon has reached the limit of its absorptive capacity, it is simply reactivated.

To be practical for commercial application to air conditioning and industrial odor removal systems, activated carbon must combine these basic qualities: 1) Maximum absorptive capacity per unit of volume; 2) A high degree of retentivity, or power to hold the absorbed matter; 3) Structural strength and hardness capable of resisting crushing and abrading action.

Room air recirculated through activated coconut-shell carbon odor absorbers is 100% odor-free and the best known substitute for outside air. The use of odor absorbers permits full advantage to be taken of the recirculating principle.

BLEACHED WALNUT FURNITURE

One version of "new modern" is this credenza sideboard and chair, part of a new junior dining room group which includes an oval table, small serving commode and china. Made of bleached walnut, chamfered moldings serve both as drawer pulls and trims on the case pieces. The cases are unbroken by hardware other than the tiny key-type pulls on the cabinets and upper drawers. The chairs are upholstered in a textured tapestry, in a mauve rosewood tone which exactly matches the wood. Photo. courtesy of American Furniture Mart.

Conveyorized Furniture Finishing Department

(Continued from page 15)

it is to receive a clear or opaque finish. The conveyor makes a right turn, travels through one side of a long oven (E, Fig. 3) makes a hairpin turn to the right past another 2-man spray booth (G, Fig. 3) where a sealer coat is applied, returns through the other side of the oven (H, Fig. 3) and emerges through a ribbon curtain, as shown at the right in Fig. 2, where it makes a left hairpin turn. A light hand sanding with fine sandpaper begins where the workman appears at the right in Fig. 2 (I, Fig. 3).

Following the sanding of the undercoat or sealer coat, the furniture is carried past the shading booth (J, Fig. 3) past stencil decorators (as shown in the background of the second conveyor line in Fig. 1, and at K and L in Fig. 3) and on to the booth where the varnish or final finish coat is sprayed, as shown at the right in

Fig. 1, at N, Fig. 3, and in the left foreground of Fig. 4. Since these pictures were taken the small booth in Figs. 1 and 4 has been replaced by a 2-man spray booth.

You will notice that the varnish is shot directly from the drum. Two drums are connected in series so no shut-down is required to change drums.

The extreme right of Fig. 4 shows the transfer point from the traveling or work conveyor to the varnish drying oven.

The view marked Fig. 5 shows stock emerging from the varnish or final coat oven, ready to go to packers. It is proposed to add a conveyor to this end, after which packing will be performed on a traveling conveyor similar to the one used for finishing operations. This has been held up due to plans for an addition to the building.

Notice the chests, beds, chairs, etc., emerging from oven (Fig. 5) showing the variety of work handled on the conveyor.

We have increased production nearly 300%, with less floor space than we formerly used. Labor and overhead were both reduced, service to customers was greatly improved. Altogether, it has proved the best investment we have ever made.

Typical Production Speeds

3-chairs per minute.
Table, ¼ of a minute.
Beds, including side rails, one per min.
Chests, dressers, vanities, one per min.

Actually, we have operated faster than these figures. The conveyor travels at 13-ft. per minute in our operation, but can be adjusted from 8-ft. to 15-ft. Trays are on 4-ft. centers and

SEASON'S GREETINGS TO ALL
For a "Finer" and "Brighter" New Year
May We Suggest
Sunbrite Bronzes
SILVERS
GOLDS
COPPERS
The Mitchell-Mayer Co.
ST. LOUIS, MO.

GRAINING PLATES
bring out the
QUALITY *you*
have built in
YOUR PRODUCT
AMERICAN
ELECTROTYPE COMPANY
104 E. MASON ST.
MILWAUKEE, WIS.

All the latest news on

FINISHES

READ the January, 1940 annual review edition . .

A review of the latest finishes for the conditioning, surface preservation, decorating and polishing of products made of wood, metal and various compositions will be presented as a feature of this issue. Every user of materials, supplies and equipment having to do with product-finishing should get a copy of this edition.

OUT JANUARY 18TH

Industrial FINISHING

are quickly and easily detached so that spacing may be varied. Total floor space occupied, 5588-sq.ft. Total power for conveyor, 1½-hp.

The oven arrangement could be varied; that is, made shorter and be wider. A much shorter and a single line of the traveling conveyor, eliminating transfer, would serve if lacquer were used.

The cost, including everything, amounted to about $12,000. It should be stated that we used our former spray booths, compressor, guns, etc.

Our plant is very modernly equipped, from a machine standpoint, from sawmill to finishing, but this is the best investment we have ever made, not only from the standpoint of savings, but it has increased our production so that we are able to give service, even during peak periods.

Storing Finished Articles

FORTUNATE indeed is the concern that has no problem in taking care of articles that are finished but which must be kept on hand or stored for future requirements. In the majority of plants the manufactured item consists of several fabricated parts which are finished first and then assembled. Generally these various fabricated parts are put through the finishing process in separate batches and are then inspected and stacked or stored away until needed.

In the average factory, inspection is carefully supervised, but the problem of storing painted or finished goods receives scant attention. Often it is left to the

ingenuity of the workers. When that condition exists, the results are often haphazard, inefficient and wasteful. I have seen some glaring examples of such inefficiency that went unnoticed by the plant management. It was passed off as too trivial to bother with, but really it should have received careful attention.

In making arrangements for handling finished parts, it is well to observe one very important rule: *Each piece should support only its own weight; that is, they should not be stacked so that the weight of one piece rests on another.*

Let us assume that it is necessary to handle a round-shaped stamping. The general tendency is to stack them like mother stacked her dishes. Usually it becomes necessary to wrap each piece or at least place a sheet of paper in between them. However, if we place the parts on edge, standing them straight up and down (of course braced so that they cannot roll around) each one will support only its own weight and the paper can be dispensed with.

If the parts are odd shaped, so they do not telescope or fit together without danger of marring unless thoroughly protected from each other, then the easiest solution is to place the pieces in a box or container that is divided into individual compartments; then it will be unnecessary to wrap each piece. These boxes can be used over and over again. Manufacturers of cartons can supply any requirement economically. Where a fairly heavy load is to be taken care of, it may be necessary to use wooden boxes with cardboard partitions. These boxes

METALPREP
The Complete Metal Cleaner
Latest Type Available for Rust Treatment of
Storage Tanks
Machinery
Plant Equipment
AND GENERAL MAINTENANCE WORK
Metalprep insures perfect bond between metal and prime. Makes the metal safe for paint.
Write for Bulletin No. 55
Neilson Chemical Co.
6564 Benson St. Detroit, Mich.

GKS Ovens
INDUSTRIAL OVENS
are individually engineered and designed to meet each production schedule. Each installation is different and its design is based on previous experience.
The experience of the GKS engineers assures you of the best oven for your production. WRITE TODAY.
GEORGE KOCH SONS, INC
EVANSVILLE, INDIANA
MANUFACTURERS OF INDUSTRIAL OVENS AND COMPLETE FINISHING SYSTEMS

SHEL-MATIC 45

The Modern Spray Gun

Fully enclosed chassis. Feather-touch trigger . . Automatic needle release . . Exclusive straight-line valve action . . Anti-friction spray head . . Easily handled . . Simply adjusted . . Quickly, easily cleaned . . Reduces material waste . . Light, but rugged.

A. SHELBURNE COMPANY
739 SERES AVENUE, LOS ANGELES
★ Complete Automotive and Industrial Spray Equipment ★

Out January 18, 1940

The BIG JANUARY, 1940, ANNUAL REVIEW EDITION

●

Don't fail to get your copy!

Industrial FINISHING

may be arranged so they can be stacked one on top of the other.

By carrying out a definite well planned arrangement for handling finished parts, the manufacturer obtains many advantages. Rejects due to marring or printing are reduced if not completely eliminated. A check-up on the finished parts on hand is more easily made and these parts are more apt to be stored in their allotted place instead of being misplaced or covered by some other parts. Perhaps the greatest advantage lies in the ultimate saving of labor, especially where wrapping is eliminated. I know of one case where one man handled all the parts that formerly required three men.—J. A. BEDE.

Infra-Red Drying

NEAR INFRA-RED drying is a simple, effective drying process, say L. S. Ickis, Jr., and Howard Haynes in *Light*. Heat control is positive, flexible and requires no warming-up period. Radiant drying banks need not be force ventilated or insulated. Parabolic reflectors are used in order to concentrate infra-red energy on definite area. The surface with the highest reflection for infra-red energy is gold plating, though copper and silver plating are close to the gold. Alzak (Al. Co. of America process) is also well suited. Chromium and aluminum are less efficient. Silver and copper tarnish quickly. Gold plated reflectors are more stable than silver, but must be cleaned about every six weeks when used in drying lacquer. The 250-watt drying lamp is designed to supply most effective energy

for drying common solvents and washes. The Ford Motor Co. uses 35,000 260-watt lamps in gold plated reflectors. Prime coat is dried in 7 minutes; finishing coat 14 minutes.—STREAMLINING.

Letters from I. F. Readers

(Continued from page 9)

has a removable drum so we can use a different drum for each color. We will thank you for the names of those manufacturing a tumbler to suit our purpose.—E. U. Co. (Advertising Specialties).

New Finish Dept.

Would you be good enough to send us a late copy of INDUSTRIAL FINISHING, as we are going to set up a new finishing department, and would like to get late data on equipment, etc.—C. Y. Inc.

Alcohol-Proof Finish

We would like some information about an alcohol proof and heat-resisting finishing material for table and bar tops.—U. G. Co. (Store Fixtures).

Wants Burning-in Iron

We note in November issue of INDUSTRIAL FINISHING, page 42, that you have an article mentioning an Every-Ready Electric Burning-in Iron, which we assume would be similar to an electric soldering iron. Please advise who makes this equipment, as we would like to try one of them in our factory.—G. L. I. (Furniture Mfrs.).

Product of H. Behlen & Bros., New York, N. Y.—ED.

Tells How Paint Will Stick to Galvanized Iron

A new 4-page bulletin published by American Chemical Paint Co., Ambler, Pa., reveals interesting information about the company's product, Lithoform, and how to use it. Lithoform is not a paint. It is a non-inflammable liquid chemical that coats zinc and cadmium so that the peeling of all types of paint, lacquer, enamel, and japan is prevented.

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EDITORIAL

Review of New Finishes Featured for Next Month

Every year progressive manufacturers of finishing materials and allied products, such as metal cleaning compounds, bleaches, waxes, polishes, finish removers, repair compounds, etc., develop or acquire something new, or improve upon certain items already in their line. Some of these new products are presented in the advertising and editorial pages throughout the year. All of them will be briefly described and classified conveniently for quick reference in the Annual Review of New Finishing Materials Developed and Improved During 1939, to be published as a leading feature article in January 1940 issue.

This Annual Review number has proved to be a valuable reference edition and is referred to by industrial executives from time to time for many months, and even years, afterward. The information presented is timely, authoritative and valuable. The products publicized are those of well established reputable concerns who have successful organizations backed by years of experience and specialization in their respective fields of work.

A convenient Buyers' Directory will also be included in the January Review number.

In addition to these special features, the January issue will contain original illustrated articles of outstanding interest and value to all who have anything to do with the purchase and use of materials used for pre-treating, finishing or decorating manufactured products. Every effort is being exerted to make the first 1940 issue of INDUSTRIAL FINISHING supremely attractive and valuable to all of its regular and new readers. *Be sure to get your copy and keep it throughout the year. Show it to your friends but insist upon getting it back.*

* * * INDUSTRIAL FINISHING wishes all of its friends a Merry Christmas and a very Happy Prosperous New Year

Furniture Style Forecast

The following paragraphs are from Rosalie Flank's Forecast of Styles in Furniture, now ready to be shown at the American Furniture Mart, in Chicago, Ill., Jan. 8 to 20:

While many changes in all periods are expected, the underlying tone of the entire style scale is decidedly modern. Style experts who have watched the cycle swing from the functional modern through the various stages of evolution including the curvilinear and baroque types are now of the opinion that the trend is once more back to a new modern which borrows freely from the past, but presents something better designed for American living.

MODERN — Touches of carving relieving the austere coldness of bare cases; bits of inlay to lend a note of luxury to simple, gracefully proportioned cases; subtle streamlining which suggests a departure from traditional styling; use of leather, plastic, metal, glass, matched veneers and tambour trims to break the monotony of all plain wood cases; new hardware used with expert taste to blend with, rather than contrast basic lines, or the absence of hardware in favor of cleverly concealed pulls; new finishes on the one hand trending toward deep, rich new tones, on the other to exciting bleached finishes as subtle as rich pastels—these and many more influences will bring modern once more into the limelight of high fashion and will start the trend, so typical of our American way of living, on its second life cycle.

COLONIAL — In Colonial furniture of the type used in the deep South, a current revival, due to the filming of the popular novel "Gone With the Wind," has focused attention on American antiques. Designers, scurrying through the country to dig up furnishings of Civil War Days, are presenting their discoveries with such modern touches as deep rope fringe, new upholstery fabrics and new finishes which make them adaptable to contemporary interiors.

EARLY AMERICAN — A refinement in line which gives Early American a new feminine appeal, will show the influence of modern in simple tapered lines, modernized covers and new finishes. Other new touches anticipated include bits of relief carving, gilded mirrors, and brass grilles, adding a new luxury note to this simple furniture.

CHRISTMAS SEALS

Help to Protect Your Home from Tuberculosis

FRENCH — In no style is the transition from traditional to modern more marked than in new French pieces, according to manufacturers. Many of the new styles have completely eliminated the fussy details of the past and replaced elaborate curves with smooth flowing lines, touches of restrained carving and leather inlays, where elaborate marquetries formerly held full sway.

FINISHES — Progress made in skillful use of finishes is expected to again show extremes in high style lines, with mahogany featuring a new "Oxblood" color, while walnut will stress a new grey mauve bleached tone. The new Oxblood, like rich claret, is a deep burgundy color which has an entirely new feeling. Used on modern it opens a new avenue in decorative treatment. Walnut, on the other hand, is expected to take on a bleached color which resembles a rosewood shade, and will employ this color in fashioning modern furniture. Oak is expected to make news in a new, bleached finish which has a rich golden brown tone. Fruitwood trends toward nut brown colors, and maple runs the gamut from champaign to rich brown.

CASE GOODS — Oval tables in junior dining room groups, breakfast cabinets in 18th Century lines; chamfered moulding outlining structural details, replacing drawer pulls on sideboards and chinas; chairs with upholstered backs and seats; and credenza type sideboards are among the important trends anticipated in new dining room lines.

Openwork trims on head and footboards of beds; gilded mirrors on dressers and vanities; chest-on-chests in all periods featuring five to nine drawers; extensive use of highboys; dressing tables replacing vanities and twin night stands are trends expected to influence many of the bedroom lines on new 1940 samples.

Corner cabinets for dining room and dinette groupings; small scaled dining room sets referred to as junior dining room groups; commode type of servers which may be used in living room, hall or dining room and dining tables which may be used as living room desk or occasional tables are other additions looked for by fashion experts.

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Yes, Modern Equipment Does Save Cash

★ The editorial in November issue, entitled "Modern Equipment Saves Cash," brings out some true facts and I would like to add something more along this line—based upon many years of

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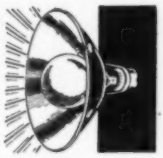

experience. I have just been in a furniture factory that needs plenty of modern equipment. Their line includes occasional furniture in solid and veneered mahogany and walnut, some parts being highly carved. They are trying to do quality work at reasonable cost, with equipment that is 20 to 25 years old. It can't be done.

For example, sanding and rubbing flat surfaces by hand are obsolete in real production. Mechanical sanders and rubbing machines represent progress, because with them the men can perform better work and more of it in less time, which means less cost.

In many cases, it is practical to do most of the rubbing by wet sanding the finished surfaces with fine wet-or-dry abrasive paper. The operator of the portable rubbing machine clamps sheets of No. 230 or No. 400 wet-or-dry sandpaper on the pad or pads of his machine, uses water or some suitable rubbing solution on the surfaces, and goes to work. It is surprising how much he can accomplish in such a short time. And, after all, isn't skilled labor the costly element in furniture manufacturing?

On carved and molded surfaces a number of progressive furniture manufacturers use liquid filler instead of paste filler. Their workmen apply it by spraying or dipping, and later the surplus filler can be quickly wiped off. This eliminates that slow time-consuming job of picking out surplus paste filler from inside corners, under-cut places, crevices, etc.

Finishing materials, equipment and methods have been changing rapidly during the past 10 years and I strongly recommend that every manufacturer keep in close touch with what is really modern right now. It's the new things that are making money for firms who are manufacturing on a production basis.—L. R. VANARNAM (Finishing Foreman).

Welcome Real Finish Salesmen; They Can Help You

★ The last two decades have seen a distinct change in salesmen. This is particularly true of those representing manufacturers of organic finishing materials. The

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old cigar-giving, back-slapping lacquer peddler has been replaced to a great extent by well informed, technically conscious men who fully deserve the newer, more dignified title of industrial representative.

It is a thinking manufacturer who recognizes and takes advantage of this change, because the paint salesman of today is able to give valuable information and advice on all phases of finishing. In his many contacts the salesman sees and is personally concerned with numerous problems, the solution of any of which may be the answer to a particular difficulty. He is in constant communication with his own sales staff and has the advantage of their collective experience in addition to his own.

Furthermore, the modern salesman has behind him an extensive laboratory where not only are finishing materials formulated but also where the merits of spray guns, cleaning methods and compounds, control apparatus, etc., are investigated. In short, the paint salesman is in an ideal position to give valuable assistance and it will be found that cooperation is gladly given, even when an order is not immediately forthcoming.

The wise buyer of industrial finishing materials follows a number of definite rules in his dealings with the paint salesman. First, he extends the same courtesy he would expect if the situation were reversed—if he were selling the products of his own company. It is surprising what a few amenities will do to enhance the important relationship between purchaser and sales representative. He greets the salesman in a friendly manner and listens attentively to what he has to say. He explains current requirements, presenting them carefully and conscientiously. By no means does he give problems which do not exist, or request samples which will never be test-

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ed, merely to speed the interview to a close. If it is possible, he calls in the finishing superintendent or laboratory man so that a maximum of understanding may be reached. Finally, he does not close the finishing room to the salesman, fearing that secrets may be exposed. He knows that the salesman is of more use there than in the reception room trying to deal long distance with details that require first hand contact.

Treat the paint salesman as a man and as a specialized technician, not as an annoying drummer. It pays dividends.—W. G. S.

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Read the January, 1940, Annual Review Issue!

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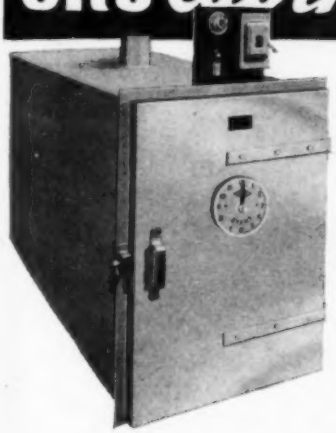

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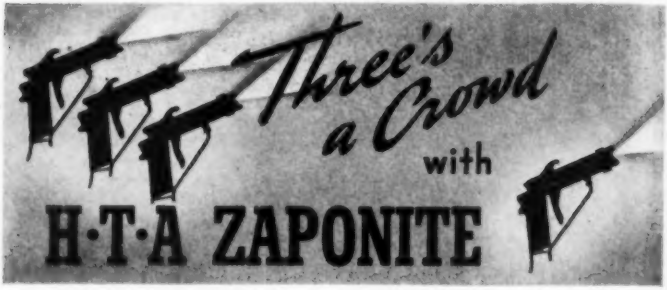

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